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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/956,890	09/21/2001	Koshiro Ochiai	2185-0575P-SP	2422

2292 7590 12/10/2002

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EXAMINER

SASTRI, SATYA B

ART UNIT	PAPER NUMBER
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1713

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DATE MAILED: 12/10/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

AS5

Office Action Summary	Applicati n No.		Applicant(s)	
	09/956,890		OCHIAI ET AL.	
	Examiner		Art Unit	
	Satya B Sastri		1713	

-- Th MAILING DATE of this communication appears on th cover sheet with the correspondenc address --

Period f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

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DETAILED ACTION

1. This Office action is in response to application filed on Sept. 21, 2001. Claims 1-7 are now pending.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

3. Claims 1-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Uchiumi et al. (US 6,329,480 B1).

Uchiumi et al. disclose the process for the preparation of acrylic acid ester polymer that includes carrying out polymerization of an acrylic acid ester or block copolymerization of an acrylic acid ester and another (meth)acrylic monomer in the presence of an organometallic compound (abstract, lines 1-5). Uchiumi et al. further disclose that for the removal of the metal compound, it is effective to subject the acrylic acid ester polymer to cleaning treatment such as

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Q washing treatment ~~such as washing treatment~~ with an acidic aqueous solution (column 18, lines 12-15). Additionally, Uchiumi et al. include that it is preferred to wash the acrylic acid ester polymer with an acidic aqueous solution as soon as possible after the termination of the polymerization, whereby metal components can be removed with high efficiency (column 18, lines 23-27). Furthermore, the working example in the disclosure for the preparation of poly(2-ethylhexyl acrylate) in example 4, column 24, lines 66 and 67, includes a washing treatment wherein the polymer solution in toluene and pentane is washed with dilute sulfuric acid followed by a series of washing operation (claim 1).

In regard to claim 2, Uchiumi et al. further include that the molecular weight of the acrylic acid ester polymers range widely, a number average molecular weight of from 1000 to 1,000,000 (column 18, lines 40-44). Furthermore, the process generally provides an acrylic acid ester polymer having a highly uniform molecular weight (that is narrow molecular weight distribution) and its molecular weight distribution (M_w/M_n) is often 1.5 or less (column 18, lines 50-54).

In regard to claims 3 and 4, Uchiumi et al. further include that there is no particular limitation imposed on the nature of the acrylic acid ester to be used invention. Any acrylic acid ester formally composed of an acrylic acid component and an alcoholic component can be used, of which acrylic acid esters containing a C_1 - C_{15} alcoholic component are preferred (column 8, lines 51-56). The acrylic acid esters can be further copolymerized with a variety of methacrylic acid esters (column 9, lines 8-11).

In regard to claim 5, Uchiumi et al. further include that the acrylic acid ester monomers include n-butyl acrylate, isobutyl acrylate, 2-methoxyethyl acrylate, cyclohexyl acrylate,

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cyclohexyl methacrylate, 2-methoxyethyl methacrylate, 3-methoxybutyl methacrylate, etc.
(column 8, lines 50-67 and column 9, lines 5-60).

In regard to claim 6, Uchiumi et al. further disclose examples of the acidic aqueous solution that include aqueous solution of citric acid.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uchiumi et al. (US 6,329,480 B1) in view of Wojtech et al. (US 5,073,622).

The disclosure of Uchiumi et al. is adequately set forth in paragraph 3 and is incorporated herein by reference. The disclosure further includes that if metal components remain in the acrylic acid ester polymer, they cause deterioration in physical properties and poor transparency and suggest the removal by washing with aqueous acidic solutions.

The difference between Uchiumi et al. and the present invention is the specific use polyprotic carboxylic acid selected from the list of oxalic acid, succinic acid, fumaric acid, maleic acid, malonic acid and adipic acid.

Wojtech et al. disclose a process for the preparation of novolac resins having a low amount of metal ions wherein the resin in an organic solution is brought in contact with an acidic, preferably an acid compound which is preferably in an aqueous phase (abstract, lines 1-7). Preferred organic acids include oxalic acid, malonic acid, succinic acid and malonic acid (column 3, lines 8-10). The disclosure further includes that most metal ions can be separated to an extremely high degree from solutions if the solutions are extracted with acids having complexing properties (column 2, lines 57-62). In light of such benefit, it would be obvious for the ordinary skill in the art at the time the invention was made to use wash the acrylic acid ester polymers of Uchiumi et al. with organic complex-forming acids such as oxalic acid, maleic acid, succinic acid and malonic acid and thereby obtain the present invention.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 4,522,928 to McVicker et al.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Satya Sastri whose telephone number is (703) 305-8490.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached at (703) 308-2450.

Any inquiry of a general nature or relating to the status of this application should be

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directed to the group receptionist at (703) 308-2351.

SATYA SASTRI

December 5, 2002


DAVID W. WU
SUPERVISOR / PATENT EXAMINER
TECHNICAL CENTER